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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,570	05/02/2001	Steve Wai Leung	25821p032	5623

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EXAMINER

LANEAU, RONALD

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 12/18/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Handwritten signature

Office Action Summary

Application No.

09/847,570

Applicant(s)

LEUNG ET AL.

Examiner

Ronald Laneau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7,8,11-15 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 4-6,9,10 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. Claims 1-19 are presented for Examination. The results of the examination are the followings.

Priority

2. Receipt is acknowledged of papers (paper # 4) submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 5/20/02 is considered by the examiner.

Specification

4. The abstract of the disclosure is objected to because it contains two different paragraphs.

Correction is required. See MPEP § 608.01(b).

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

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The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

6. Claim 16 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim must refer to other preceding claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent,

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except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

8. Claims 1-3, 11-15, and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Masazumi (US 6,414,669).

As per claim 1, Masazumi teaches a driving method for a liquid crystal display (LCD) device in which a liquid crystal exhibiting a cholesteric phase is sandwiched between two substrates having electrodes arranged in a matrix form on their substrates (col. 1, lines 12-17), providing pixels arranged in a matrix array (see abstract, line 7), providing a reset pulse and a select pulse signal is applied for every line (plurality of selection pulses) to provide pulse voltages of the waveforms (a) and (b) shown in fig. 31 (col. 23, line 60 to col. 25, line 3).

As per claim 2, Masazumi teaches a select pulse signal for every line (plurality of selection pulses) wherein a pulse width modulation (PWM circuit) capable of varying the pulse width for reproduction of 256 gray scale levels (col. 19, lines 44-46).

As per claim 3, Masazumi teaches a select pulse signal for every line (plurality of selection pulses) that have variable amplitudes as claimed (see fig. 25).

As per claim 11, Masazumi teaches driving waveform(s) that have polarity inversion after each pulse in the driving waveform as claimed (col. 16, lines 29, 30, fig. 13).

As per claim 12, Masazumi teaches voltages opposite in polarity but equal in magnitude that are constantly applied to the liquid crystal layer during the deselect (frame) period (col. 16, lines 52-54).

As per claim 13, Masazumi teaches at least some of the pulses of the driving waveform that are polarity reversed in the frame period by applying positive and negative voltages that are applied alternately (col. 16, lines 61-63).

As per claim 14, Masazumi teaches a method wherein the polarity of a succeeding pulse of the driving waveform is opposite the polarity of the immediately preceding (instant) pulse as claimed (see $\pm V_c/2$ in fig. 16).

As per claim 15, Masazumi teaches a selection pulse for each line (multiple selection lines) wherein the pulses of a succeeding frame periods is different from the instant pulse (see $\pm V_c/2$ in fig. 18).

As per claim 17, Masazumi teaches cases where gray scale is reproduced by varying the voltage value of the waveform(s) (col. 16, line 67 to col. 17, line 1).

As per claims 18 and 19, Masazumi teaches in the waveform during the reset period a voltage V_{th1} for setting the liquid crystal into the homeotropic state that is first applied for a duration of time t_3 and then the voltage is held below a threshold voltage V_{th2} for a duration of time t_4 for setting the liquid crystal into the planar state. Further, Masazumi teaches a voltage greater than V_{th2} and smaller than V_{th1} to cause the liquid crystal in the planar state to change to the focal conic state. To achieve gray scale levels, the entire reset period $t_3+t_4+t_5$ can be made shorter than t_1 (col. 14, lines 20-41).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masazumi (US 6,414,669).

As per claims 7 and 8, Masazumi teaches a reset pulse signal 9col. 23, lines 65-66)and a reset voltage period (col. 10, line 61) but does not explicitly that the reset pulses are no smaller in value than the reset voltage and the reset pulses are greater than the reset voltage. It would have been obvious to one of ordinary skill in the art to specifically utilize the values of the reset pulses as claimed because it would obtain the needed amount of voltages for a cholesteric liquid crystal material to select the display state of the liquid crystal in every pixel thereby improving the matrix driving.

Allowable Subject Matter

12. Claims 4-6, 9, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the references, either singularly or in combination, teaches or even suggests:

As per claims 4-6, a method wherein there is a multiplex addressing driving waveform and a reset pulse selected from a group consisting of a pipeline and non-pipeline arrangement.

As per claims 9 and 10, a method wherein the selection pulses of the multiplex driving waveform are arranged in groups selected from clustering together, interleaving with other rows, and a combination of said clustering and said interleaving.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Mochizuki et al (US 4,812,034) teach a cholesteric-nematic phase transition type liquid crystal with positive dielectric anisotropy is used in a projection type liquid crystal display device.

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- Nishio (US 6,096,392) teach a liquid crystal composition comprising a cholesteric liquid-crystal polymer, an electrolyte, and an aqueous medium is hermetically interposed between a pair of electrodes and an electric field is applied to the assemblage to control the display color.
- Stephenson (US 2002/0135707) teaches a rewritable display having spacing layer comprising a transparent substrate, a first transparent conductor over such substrate, a layer including cholesteric liquid crystal material, a dielectric layer having openings.
- Yuan et al (US 6,317,189) teach a reflective display comprising a pair of substrates and a holographic polymer dispersed cholesteric liquid crystal (HPDCLC) material formed between the substrates.
- Takami et al (US 2001/0033351) teach a liquid crystal display unit using holographic polymer dispersed liquid crystal (HPDLC), cholesteric liquid crystal, chiral nematic liquid crystal, or mixed liquid crystal composed of cholesteric and chiral nematic liquid crystal.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Laneau whose telephone number is 703-

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305-3973. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6.00 PM or via email: ronald.laneau@uspto.gov.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached at 703-305-4709.

15. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ronald Laneau
Examiner
Art Unit 2674

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December 3, 2002